Benign Mucosal Fold Lesion as a Cause of Hoarseness of Voice - A Clinical Study

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Abstract

Hoarseness of voice is a common disorder seen in day to day practice of Otorhinolaryngologist. Although occasionally it can be a symptom of underlying malignancy, there are a variety of benign lesions causing the same. We analyzed a total number of 100 patients with history of hoarseness of voice for at least six months in whom the cause of hoarseness was the presence of a benign vocal fold lesion. Malignancies, vocal cord paralysis and Neurological lesions were excluded from the study. We found that vocal nodules were the commonest benign mucosal fold lesion, (37% patients); followed by vocal polyps in 26%, LPR 23%, Reinke’s edema in 4%, intracordal cyst in 4%, contact ulcer in 3%, saccular cyst in 2% and papillomatosis in 1% of the patients.

Keywords: Hoarseness; Fiber optic laryngoscopy; Vocal nodules

Introduction

Hoarseness is a vague term that patients often use to describe a change in voice quality ranging from voice hoarseness to voice weakness. However the term can reflect abnormalities anywhere along the vocal tract from the oral cavity to lungs. Ideally the term “Hoarseness” refers to laryngeal dysfunction caused by abnormal vocal cord vibration [1]. Bernoulli’s principle explains that when air passes from one large space to another i.e. from lungs to Pharynx, a vibratory pattern is developed at the vocal cords and the resultant sound produced is appreciated as voice [2]. When the regularity of vibratory pattern is lost, i.e. becomes random, the resulting vocal sound is heard as a hoarse. There are a variety of causative factors leading to hoarseness of voice which include acute or chronic infections, benign mucosal fold disorders, systemic diseases, gastro esophageal reflux disorders, malignancies etc.

Benign mucosal fold disorders are common. More than 50% patients with voice complaints have a benign mucosal disorder [3]. Brodnitz [4] reported 45% of nodules, polyps or polypoidal thickenings where as Kleinsasser [5] reported that more than 50% of 2618 patients had one of these benign entitles. Benign mucosal fold lesions like vocal nodules, polyps, intracordal cysts, contact ulcers etc., seem to be caused primarily by vibratory trauma (excessive voice use). An expressive talkative personality correlates most consistently with most of these disorders. Cigarette smoking, infections, allergy and acid reflux increases the mucosa’s vulnerability to vibratory trauma leading to injury [3]. The anatomy most relevant to benign vocal fold mucosal disorders is the micro-architecture of the vocal folds. Starting medially towards lateral direction, the membranous vocal fold is made up of squamous epithelium, Reinke’s potential space, the vocal ligament and the thyroarytenoid muscle. Perichondrium and thyroid cartilage provide the lateral boundary of the vocal fold.

Material and Methods

The present prospective study was conducted in the ENT Department of SKIMS Medical College, Bemina, Srinagar. The patients with the history of hoarseness of voice as a predominant symptom or associated a symptoms of other complainers like cough, pain, foreign body sensation, dryness of throat etc. were taken up for the study. The patients with Hoarseness of voice for at least six months were included in the study. The patients with acute infections, carcinomas, vocal cord paralysis or other neurological diseases were excluded from the study. A detailed history of general physical examination, routine investigations and indirect laryngoscopy were done and findings recorded. Fiber optic laryngoscopy was done in patient with difficult indirect laryngoscopy because of one or other reasons. All the patients with structural lesions were subjected to microlaryngeal surgery and specimen were sent for histopathological examinations.

Observations

The males comprised 61% of patients in the study and the commonest age group involved was 30–40 years. The average duration of the symptoms was 11 months. The history of vocal abuse or excessive use of voice was seen in 45% patients, 47 patients were smokers and 7% were alcoholics. The Hoarseness of voice was a predominant symptom in 73% patients followed by cough in 20% foreign body sensation in 19%, heart burn in 17%, frequent attempts at clearing the throat in 13% and low grade pain in 9% patients. The structural anomalies found are listed in table 1. The vocal nodules were the commonest lesion seen and were present in 37% patients. Vocal polyps, laryngopharyngeal thickenings were present in 37% patients; followed by vocal polyps in 26%, laryngopharyngeal reflux in 23%, Reinke’s edema in 4%, intracordal cyst in 4%, contact ulcer in 3%, saccular cyst in 2% and papillomatosis in 1% of the patients.

Table 1: Showing male preponderence in our study.

<table>
<thead>
<tr>
<th>Sex</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>61</td>
</tr>
<tr>
<td>Female</td>
<td>39</td>
</tr>
</tbody>
</table>

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reflux, Reinke's edema, intra-cordial cysts, contact ulcer, saccular cyst and papillomatosis were found respectively in 26%, 23%, 4%, 4%, 3%, 2% and 1% patients. The sex distribution of individual lesions is also listed in Table 1. The lesions were on right side in 44% and on left side in 37% patients where as patients the lesions were bilateral.

The site of lesion was divided into anterior, middle and posterior one thirds. In 47% patient's involvement was in anterior one third areas. The middle one third and posterior one third areas was the site of lesion in 11% and 22% patients respectively. In 20% patients, area of involvement was either diffusing or more than one area was involved as illustrated in the table 1.

**Discussion**

Hoarseness of voice is a common ailment for which consultation of and Otorhinolaryngologist is sought. It may be intital or only symptom of an underlying malignancy and thus merits at detailed ENT examination. However a variety of benign lesions also cause Hoarseness of voice and are sources of concern and worry as it can affect the self esteem of a person, besides it can be a cause of job threat to professionals like singers, teachers and preachers. However a proper diagnosis and management can be rewarding in most of these benign lesions.

In the present study the commonest pathology was the presence of vocal nodules in 37% patients. Vocal nodules are defined as bilateral symmetrical epithelial nodular swelling of interior middle third of true vocal folds. Mahesh Chandra et al. [6] reported an incidence of 28.57% of vocal nodules in their study.

Vocal polyps were seen in 26% patients and in all cases were unilateral. Vocal polyps are pedunculated masses encountered on true vocal cords. They are more common in males, often intense intermittent unilateral. Vocal polyps are pedunculated masses encountered on true vocal cords. They are more common in males, often intense intermittent

**Table 2: Showing the commonest pathology was the presence of vocal nodules in 37% patients. Vocal nodules are defined as bilateral symmetrical epithelial nodular swelling of interior middle third of true vocal folds. Mahesh Chandra et al. [6] reported an incidence of 28.57% of vocal nodules in their study.**

Age-group(crossingly affected) | 30-40 years
---|---
Positive history | Number of cases
History of vocal abuse | 45%
History of Smoking | 47%
History of alcoholism | 7%

**Table 3: Showing Cases with Past History.**

**Table 4: Showing cases with predominant symptomatology.**

<table>
<thead>
<tr>
<th>Predominant symptom</th>
<th>Percentage of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoarseness</td>
<td>73%</td>
</tr>
<tr>
<td>Cough</td>
<td>20%</td>
</tr>
<tr>
<td>Foreign body sensation</td>
<td>19%</td>
</tr>
<tr>
<td>Heart burn</td>
<td>17%</td>
</tr>
<tr>
<td>Throat clearing</td>
<td>13%</td>
</tr>
<tr>
<td>Low grade pain</td>
<td>9%</td>
</tr>
</tbody>
</table>

**Table 5: Showing the side involvement with percentage of cases.**

<table>
<thead>
<tr>
<th>Site of lesion</th>
<th>Percentage (%) of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anterior 1/3 of vocal cord</td>
<td>47%</td>
</tr>
<tr>
<td>Middle 1/3 of vocal cord</td>
<td>11%</td>
</tr>
<tr>
<td>Posterior 1/3 of Vocal cord</td>
<td>22%</td>
</tr>
<tr>
<td>Diffuse</td>
<td>20%</td>
</tr>
</tbody>
</table>

**Table 6: Showing percentage of cases with respect to site of lesion of vocal cord.**

<table>
<thead>
<tr>
<th>Lesion</th>
<th>Males (Total No. 61)</th>
<th>Female (Total No. 39)</th>
<th>Total No. 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Patients</td>
<td>%</td>
<td>No. of Patients</td>
<td>%</td>
</tr>
<tr>
<td>Vocal nodules</td>
<td>28</td>
<td>45.90</td>
<td>9</td>
</tr>
<tr>
<td>Vocal polyps</td>
<td>18</td>
<td>29.50</td>
<td>8</td>
</tr>
<tr>
<td>LPR</td>
<td>8</td>
<td>13.11</td>
<td>15</td>
</tr>
<tr>
<td>Reinke’s edema</td>
<td>3</td>
<td>4.91</td>
<td>1</td>
</tr>
<tr>
<td>Intracordal cysts</td>
<td>2</td>
<td>3.27</td>
<td>2</td>
</tr>
<tr>
<td>Contact ulcer</td>
<td>1</td>
<td>1.63</td>
<td>2</td>
</tr>
<tr>
<td>Saccular cyst</td>
<td>1</td>
<td>1.63</td>
<td>1</td>
</tr>
<tr>
<td>Papillomatosis</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>

**Table 7: Shows various vocal cord lesions observed in (our study) with percentage of male/female cases in each lesion.**

...
in differentiating such cysts from polyps [15]. They found the mucosal wave to be diminished or absent in 100% of vocal fold cysts and the wave to be present in 80% polyps.

In the present study contact ulcers were seen in 3% patients. Contact ulcer is made up of thickened epithelium with a central indentation. These are appreciated as saucer like lesions on the medial edge of vocal cords. These can be bilateral and symmetrical often with a small projection of one cord which fits the saucer of other side [16] (Table 5).

In the present study one patient aged 3 years had laryngeal papillomatosis [17]. Respiratory papillomatosis is an infection caused by human papillomavirus (HPL) which is also known to more commonly cause of cervical, vaginal, penile and anal warts. Although it is relatively uncommon in larynx, it is still considered to be one of the commonest laryngeal neoplasms [7,15]. In the present study, in 2% patients, Hoarseness of voice was due to huge secular cysts encroaching corresponding mucosal folds (Table 4). Laryngeal cysts and laryngoceles are actually disorders of saccule and were included in the present study because of big enough size to have impact on vocal folds.

References

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